UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/930,503	08/16/2001	James L. Henry	CCT-P0011	1568

36067 7590 08/29/2007

DALINA LAW GROUP, P.C.
7910 IVANHOE AVE. #325
LA JOLLA, CA 92037

EXAMINER	
VIVLEMORE, TRACY ANN	
ART UNIT	**PAPER NUMBER**
1635	
MAIL DATE	**DELIVERY MODE**
08/29/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/930,503	HENRY ET AL.	
	Examiner	Art Unit	
	Tracy Vivlemore	1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 June 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *138-151* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *138-151* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Any rejection or objection not reiterated in this Action is withdrawn.

Claim Objections

Claim 141 is objected to because of the following informalities: this claim recites aptamers, which are non-elected subject matter. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 recites the limitation "the activity of NK-1 receptor" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claims 138-151 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed,

had possession of the claimed invention. This rejection is based on grounds of both new matter and lack of written description.

The claims have been amended to recite a method of treating conditions or disorders associated with activity of the NK-1 receptor using the antisense sequence designated as SEQ ID NO: 41. The specification contemplates methods of treating conditions characterized by involvement of the NK-1 receptor, but provides no support for disorders that are "associated with activity" of the NK-1 receptor, therefore the limitation appears to introduce new matter. The specification does not describe the specific activity of the NK-1 receptor these disorders are associated with, it does not describe the criteria which must be met for a disorder to be considered as being associated with activity of the NK-1 receptor, and does not describe the difference between those conditions that are involved with the NK-1 receptor and those conditions that are associated with activity of the NK- receptor.

Even if the newly added limitation does not introduce new matter, the disclosure of the specification does not provide written description for the scope of diseases associated with activity of the NK-1 receptor. The specification contemplates that pathological conditions characterized by involvement of the NK-1 receptor include dermatological disorders, immune disorders, autoimmune disorders, cardiovascular disorders, neuropathic disorders, vascular disorders, gut inflammation, arthritis, airway disorders, psychiatric disorders, central nervous system disorders as well as pain and inflammation of any etiology so long as involvement of the NK-1 receptor is present. The specification does not provide guidance regarding which of these is associated with activity of the NK-1 receptor.

The specification describes use of antisense oligonucleotides to the NK-1 receptor to reduce pain in rats exposed to a painful stimulus. The description of a method of reducing pain does not provide description of methods for treating the numerous disorders recited in the specification. Using the generic term "immune disorders" as an example, the specification contemplates that the disclosed method will be useful in treating immune disorders, but does not describe what immune disorders are associated with activity of the NK-1 receptor and can be treated by the instantly claimed method. The prior art does not provide a description of what immune disorders can be treated by modulation of the NK-1 receptor pathway. Without such a disclosure, the skilled artisan would not be able to recognize whether a particular immune disorder is associated with activity of the NK-1 receptor pathway. The prior art also teaches that the NK-1 receptor is widely expressed in the nervous, cardiovascular and respiratory systems and the gastrointestinal tract and is implicated in pain transmission, vasodilation and smooth muscle contraction. However, in view of the teachings of the specification and the prior art that inhibition of NK-1 receptor is ineffective at treating acute conditions as outlined in the following scope of enablement rejection, the skilled artisan would not be able to recognize what conditions and disorders can be treated using SEQ ID NO: 41.

In order for the written description provision of 35 USC 112, first paragraph to be satisfied, applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the 'written description' inquiry, whatever is now claimed. For example, MPEP 2163 states in part,

"An adequate written description of a chemical invention also requires a precise definition, such as by structure, formula, chemical name, or physical properties, and not merely a wish or plan for obtaining the chemical invention claimed. See, e.g., *Univ. of Rochester v. G.D. Searle & Co.*, 358 F.3d 916, 927, 69 USPQ2d 1886, 1894-95 (Fed. Cir. 2004) (The patent at issue claimed a method of selectively inhibiting PGHS-2 activity by administering a non-steroidal compound that selectively inhibits activity of the PGHS-2 gene product, however the patent did not disclose any compounds that can be used in the claimed methods. While there was a description of assays for screening compounds to identify those that inhibit the expression or activity of the PGHS-2 gene product, there was no disclosure of which peptides, polynucleotides, and small organic molecules selectively inhibit PGHS-2. The court held that "[w]ithout such disclosure, the claimed methods cannot be said to have been described.")."

The skilled artisan cannot envision the full genus of conditions and disorders associated with activity of the NK-1 receptor that can be treated by the instantly claimed method. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it.

Claims 138-151 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for treatment of chronic pain or chronic inflammation by intravenous or intrathecal administration of an antisense oligonucleotide in order to interfere with production of the NK-1 receptor, does not reasonably provide enablement for treatment of all pathological conditions associated with activity of the NK-1 receptor, nor does it provide enablement for interfering with function of NK-1 receptors. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

The following factors as enumerated *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988), are considered when making a determination that a disclosure is not enabling: the breadth of the claims, the nature of the invention, the state of the prior art, the level of ordinary skill in the art, the level of predictability in the

art, the amount of direction provided by the inventor, the existence of working examples and the quantity of experimentation needed to make the invention based on the content of the disclosure.

The claims are directed to methods of treating any condition or disorder associated with activity of the NK-1 receptor using the oligonucleotide designated as SEQ ID NO: 41 to interfere with the function or production of NK-1 receptor. In specific embodiments the oligonucleotides include antisense or sense oligonucleotides or ribozymes and the oligonucleotide is administered intrathecally or intravenously.

As described in the office action mailed 7/3/2006, the specification contemplates a wide variety of conditions including dermatological, immune or autoimmune, cardiovascular, neuropathic or airway disorders as diseases treatable by the instantly claimed methods. The working examples of the specification describe intrathecal and intravenous administration of an antisense oligonucleotide designated as SEQ ID NO: 11 that is targeted to the NK-1 receptor and is administered to rats to reduce pain resulting from exposure to a painful mechanical or chemical stimulus. These examples are not commensurate in scope with treatment of all conditions or disorders associated with activity of the NK-1 receptor.

It is recognized by the skilled artisan that antisense oligonucleotides can affect receptor production by inhibiting expression of the gene for a receptor but do not have any effect on receptor function. Specifically, the prior art teaches (see Hua et al. Journal of Neurochemistry, of record) that use of antisense oligonucleotides to NK-1 receptors to treat acute pain found only minor effects except during co-administration of the NK-1 receptor agonist substance P. Hua et al. speculate that NK-1 receptors

normally turn over at a slow rate and interfering with NK-1 receptor production may have little short-term effect on receptor numbers. Also, the specification itself acknowledges this on page 8 and teaches that the instant invention is useful for treating chronic conditions where the NK-1 receptor is experiencing high turnover but that conditions where receptor are not stimulated are unaffected:

> "...the present inventors have found that oligonucleotides, and especially antisense oligonucleotides, can be used effectively to treat chronic conditions and other pathological states without the co-administration of substance P. In such pathological states, the activation of NK-1 receptors is already high and turnover rates are commensurately rapid treatment with antisense oligonucleotides appears to reduce the number of activated receptors while not reducing the number of quiescent NK-1 receptors. Thus, the present invention targets NK-1 receptors that are active because of an existing condition to thereby ameliorate chronic pain and inflammation and disease conditions associated therewith. Receptors not chronically stimulated will be less affected, reducing side effects of treatment."

Therefore both the disclosure of the specification and what is known in the art indicates the skilled artisan would recognize that use of antisense oligonucleotides does not interfere with the function of NK-1 receptors and would not be able to treat the full range of conditions or disorders associated with activity of the NK-1 receptor. Limiting the claims to treatment of chronic pain and inflammation by inhibiting production of NK-1 receptors with an antisense oligonucleotide would be remedial.

Response to arguments

Applicants traverse the written description and scope of enablement rejections by asserting that in view of the amendment to claim 138 one of skill in the art would find the disclosure enabling for a method of treating a condition or disorder associated with the activity of NK-1 receptor. Applicants further assert that antisense oligonucleotides to NK-1 receptors may be used to treat acute pain or inflammation, regardless of the

teachings of the Hua et al. reference. These arguments are not persuasive because they provide a mere assertion of patentability unsupported by any specific arguments to rebut the specific issues raised in the previous office action.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Vivlemore whose telephone number is 571-272-2914. The examiner can normally be reached on Mon-Fri 8:30-5:00.

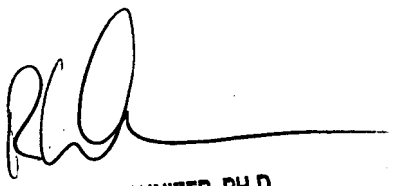
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J. Douglas Schultz, can be reached on 571-272-0763. The central FAX Number is 571-273-8300.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public. For more information about the PAIR system, see http://pair-direct.uspto.gov.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

Tracy Vivlemore
Examiner
Art Unit 1635

TV
August 22, 2007



RICHARD SCHNIZER, PH.D.
PRIMARY EXAMINER